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Reports from the 1990 Professional Seminar

STUDYING HEMI-SYNC® EFFECTS ON ANIMALS

by Helene N. Guttman, Ph.D.

Now employed as the animal care coordinator in the Agricultural Research Service with the U.S. Department of Agriculture (USDA), and active in various metaphysical pursuits, Helene Guttman has a diverse education, with each advanced degree in a different scientific field. She has published extensively in various biomedical areas. Her publications include several on brain peptides that influence behavior.

Does Hemi-Sync® affect animal behavior? Can nonhumans benefit psychoemotionally from it? There is a long anecdotal history implying that sounds influence animal physiology and behavior: farmers play certain music in chicken coops to increase egg laying, or in barns to stimulate milk production. Currently there is much interest in noninvasive methods for enriching the environments of research animals.

The use of animals in research is a controversial subject. As the ethical debate continues, researcher Helene Guttman is committed to identifying and implementing methods that support the well-being of animals in the research environment. During her *GATEWAY VOYAGE*® in 1989 she was struck by the applicability of Hemi-Sync as a noninvasive system that can be introduced to animals with relative ease. For the past year she has been working to select the animal population, solicit collaboration, and develop a research design for controlled experiments to study Hemi-Sync with animals. Dr. Guttman spoke about the process and status of her investigations.

Animal models are frequently used as surrogates for human subjects in drug testing. Although no animal can be a complete model for humans, certain species are more appropriate for biochemical studies than others. Ninety percent of animals used for research, said Dr. Guttman, are rats and mice, especially for pharmacological testing. In certain areas of biochemical research it is considered critical to use nonhuman primates (NHPs). NHPs began to be imported for research about thirty years ago and are raised in specially designed primate centers. Previously, prisoners and mental patients were often used both as voluntary and involuntary subjects. This practice ceased with the initiation of human-subject review boards in each institution doing studies on people. The boards scrupulously review experimental protocol and insure that informed consent is obtained from each human subject. Although NHPs are not protected by informed consent, animal care and use committees are assigned to review and determine

whether or not specific testing requires nonhuman primates and to insure the quality of the experimental protocol. The burden of proof rests on the researchers.

The animals' physical and psychological comfort are also a focus of attention. If the experiment requires restricting a naturally social animal to an isolated, separate environment because of a potential health hazard, the animal's social needs must be fulfilled by the researchers in another way. Responses to these needs may include supplying interesting toys for play and grooming. "Individual stereotypic behavior," explained Dr. Guttman, "tells you when an animal is happy or unhappy. It will express its likes and dislikes." Careful observation will reveal whether an animal is unhappy simply by virtue of its particular environment. For instance, she said, "... some will exhibit behavior similar to [Dr. Morris's sensorially overloaded] kids."

It was in this arena of environmental enrichment for NHPs that Dr. Guttman identified the opportunity for Hemi-Sync intervention. A successful study would serve the animals and provide another means for the primate center to satisfy animal care and use committee requirements. Hemi-Sync could be a cost-effective, noninvasive, mood-changing modality supporting both the NHPs and their caretakers. The challenge she faced at that point was how to set up an experiment which would not interfere with studies already in progress.

Hoping to establish an experiment on the East Coast by the fall of 1989, Dr. Guttman began networking among colleagues. A promising contact was made with a primate animal behaviorist investigating individual animal responses. The primate facility contained videotaping and stereo sound delivery capabilities, ideal for implementation of the experiment. Dr. Guttman and the behaviorist began planning a methodology. At that time a young veterinarian who developed some of the toys for the animals asked to be involved in the program.

Then, as the project group was gearing up, new budgetary restrictions put the experiment on hold for at least a year. After investigating other avenues for NHP studies, Dr. Guttman concluded that farm animals would be the best alternative. She selected individually owned horses as the test group.

Horse owners are generally quite aware of behavioral patterns and changes in their animals. Further, the horse racing and show industries have a vested interest in behavior enhancement techniques and may therefore be willing to sponsor a study. Employing an A-B-A research model of: A) establishing a baseline (non-Hemi-Sync); B) introducing Hemi-Sync; and C) returning to baseline (non-Hemi-Sync), monitoring physiological changes can be accomplished with a special electrode cap designed for horses to record EEG changes. Limited blood samples will be taken to test for

behavioral peptides. Additionally, observed behavioral changes can be noted and recorded. Portable instrumentation is being designed that will allow simultaneous Hemi-Sync and brain-mapping data to be collected. Survey instruments can be designed to allow the researcher to remain unaware of whether or not an animal is receiving Hemi-Sync, thereby preserving the double-blind nature of the study.

With her design prototype prepared, Dr. Guttman expressed frustration about the delay in beginning an experiment. If responses to the horse study are favorable, the likelihood of support for an NHP experiment should increase dramatically. “Hemi-Sync as an NHP environment-enrichment tool,” she reiterated, “would be cost-effective, important, and would serve the research community.”

[Ed. note: Since the Professional Seminar, Dr. Guttman has recruited the participation of at least one individual horse owner with five animals who has begun to collect preliminary behavioral data.]

[See: Topics/Animals/Horses]